

Will Policy Be The Tipping Point?



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Stephen L. Reich Program Director - *Center for Urban
Transportation Research*- University of South Florida



Presentation Outline

- Background on Florida transit clean fuels
- Recent attempts to gain statewide momentum
- Assessment and evaluation of alternative fuel options for Florida's mass transit systems



“Tipping Point”

n. In epidemiology, the concept that small changes will have little or no effect on a system until a critical mass is reached. Then a further small change "tips" the system and a large effect is observed.

Source: The Word Spy <http://www.wordspy.com/words/tippingpoint.asp>



Clean Fuel Transit in Florida

- Fuel diverse and geographically dispersed
- At least 11 of the 25 fixed route systems in the state are using some alternative to diesel fueled buses
- Some early adopters had less than positive experiences



Selected Applications

Miami Beach Electrowave

- 🚌 Implemented January 1988
- 🚌 Technology Battery electric
- 🚌 Ridership 21,000 daily



Selected Applications

Coral Gables Trolley

- ☐ Implemented Fall 2003
- ☐ Hybrid Electric
- ☐ E-Bus
- ☐ Ridership 13,000+ daily



Fort Lauderdale City Cruiser

- ☐ Implemented Service implemented in 1997
- ☐ December 2000 B20 90% of the time
- ☐ Ridership- March 2004 topping 40,000



Selected Applications

- **HARTLine - Tampa**
- CNG powered trolley replica buses since 1998.
- 3 Gillig 40 ft. Hybrid-electric buses on order.
- Poor experience with electric buses.



Selected Applications

LYNX- Orlando

- 🚌 Operates 11 CNG fueled buses - BRT
- 🚌 135,800 gallons of CNG annually.

Coconut Creek Community Bus

- 🚌 Implemented service in 1993
- 🚌 Shuttle buses operating on biodiesel



Trying to Reach Critical Mass

- 1998 Clean Fuel Coalition formed
- 1999 Clean Fuel Florida Advisory Board created
- 2003 Cornerstone Report issued
 - One eight recommendations focused on “Clean Fuel Transit Systems”
- 2004 FDOT launches study with CUTR



A New “Small Thing” emerges

- FDOT funds up to 25% of new transit vehicle acquisition costs
- Concerned over perceived increases in fuel and maintenance costs of newer, cleaner diesel buses
- Requested an analysis to form a policy on future investments – diesel or AF path



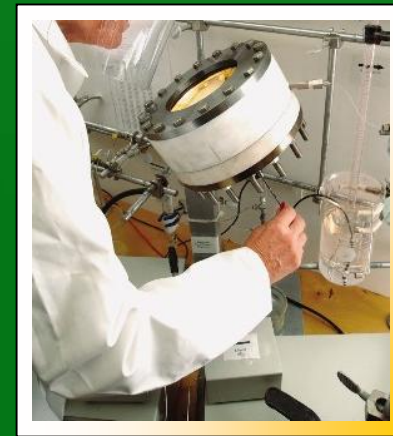
Project Purpose

- Assess the current state of the art of alternatives to diesel powered public transit vehicles for Florida's public transportation agencies.
- To examine prior negative experiences with alternatively fueled buses to determine if technological developments have solved some early deployment problems.



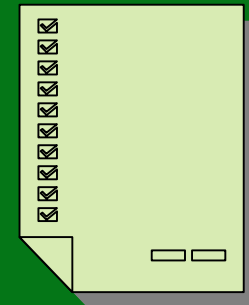
Project Team

- **Project Manager** - Florida Department of Transportation – Office of Public Transportation
- **Principal Investigator** – CUTR
- **Other members** – Clean Energy Research Center at USF



Project Scope

- Assess and document Florida and other transit agencies' experiences – separate fact from myth
 - Survey all of the agencies operating fixed route transit service to determine the actual experience
 - Summarize significant AFV transit programs – in and out of Florida



Project Scope

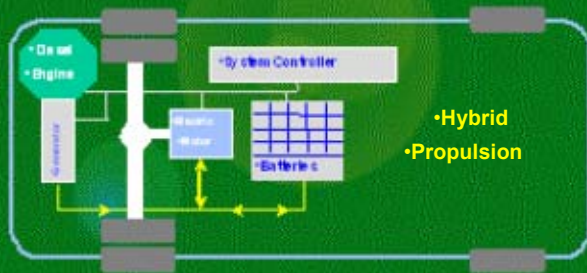
- Document Existing and Emerging AFV Technologies
 - Develop database of AFV options
 - Analysis of regulatory requirements
 - Pros and cons of each technology
 - including cost
 - Capital, operating and life cycle costs



Alternative Fuel/Technology Compared to Low Sulfur Diesel	Vehicle Acquisition Cost	Fueling/ Servicing Special Requirements and Costs	Energy Content/ Range per BTU or Gallon Diesel Equivalent	Emissions Per Vehicle Mile	Overall Energy Balance of Fuel/ Technology	Major Costs/Repairs Needed During 12yr Life of Vehicle
Ultra-Low Sulfur Diesel (ULSD)						
Liquefied or Compressed Natural Gas						
Liquefied Petroleum Gas						
Ethanol						
Methanol						
Biodiesel						
Hybrid-Electric						
Electric						
Fuel Cell						
Exhaust Emissions Equipment						

Project Scope

- Build Consensus
 - Attempt to match the available technologies to individual agency goals
 - Objectives of FDOT will be vital



- Small IC Engine
- Generator
- Electric Drive Motor
- Energy Storage
- System Controller



Project Scope

- Recommendations
 - Recommendations could set a desired course for the acquisition of cleaner vehicles and/or fuels, or
 - Reveal the need for additional information, or
 - Establish a plan to field test and evaluate the most appropriate technologies



Could the results of this investigation result in the “tipping point” for Florida?

